Memorandum

August 21, 2018

To:	Brian Kelly, U.S. EPA Lori Kozel, Tetra Tech	Ref. No.:	048041
From:	Glenn Turchan, Lisa Clements, Matt Rousseau/kf/169		
CC:	Grant Gilezan – Dykema Gossett Colleen Liddell, Bert Richnafsky – NPOS Respondents		
Subject:	**Response to July 30, 2018 U.S. EPA Email Comments Quarterly Progress Report 21 Former Dearborn Refining Site, Dearborn, Michigan**		

This Memorandum presents the NPOS Respondents' responses to the United States Environmental Protection Agency (U.S. EPA) July 30, 2018 email comments regarding the Dearborn Refining Site (Site) Quarterly Progress Report 21.

U.S. EPA Comment 1:

Figure 1 – can you revise the figure to include 0.5-foot gw flow contour. It is difficult to discern the flow direction.

GHD Response to U.S. EPA Comment 1:

The attached Figure 1 from Quarterly Progress Report 21 was revised to present the 0.5-foot groundwater contour interval.

U.S. EPA Comment 2:

MW7-10 had over 4 feet of LNAPL. A contingency for bailing out measurable LNAPL should be include in monitoring events.

GHD Response to U.S. EPA Comment 2:

GHD does not believe that bailing the light non-aqueous phase liquid (LNAPL) observed in Site wells (e.g., 4.27 feet of LNAPL in MW7-10) is required. The observed LNAPL does not constitute a significant change in Site conditions as LNAPL has been intermittently measured in MW7-10 at similar magnitudes and LNAPL has not been detected in the off-Site sentry wells. Given that the implementation of a very aggressive high vacuum extraction system achieved negligible LNAPL recovery, there is no reason to believe that a passive activity like LNAPL bailing might achieve any change in conditions or risk reduction that might

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outweigh the risk to personnel associated with its extraction/handling and the environmental impacts and potential risks associated with its transportation and off-Site disposal.

It should also be noted that the in-well thickness data, in general, are likely to be overestimated due to the viscous nature of the Site LNAPL and the resulting coating of the oil/water interface probe potentially exaggerating the thickness of the LNAPL present. This is a common issue at sites with viscous LNAPL, and has been an ongoing issue at the Site specifically. It is noted that the LNAPL transmissivity tests completed at the Site historically used the skimming technique as opposed to the more common baildown technique expressly because of this issue (i.e., the unreliable nature of the in-well LNAPL thickness data).

As identified in the LNAPL Transmissivity Evaluation Results and Recommendations Response to Comments Memorandum dated April 2, 2014, the results of the previous transmissivity tests performed on Site provided valuable insight into the lack of mobility and recoverability of the Site LNAPL, which is also consistent with the operation of the Multi-Phase Extraction (MPE) System spanning multiple seasons. It is also notable that only five of the Site wells contained enough LNAPL for LNAPL transmissivity testing as per Michigan Department of Environmental Quality (MDEQ) policy (i.e., the remaining 41 wells on Site either contained no LNAPL or not enough for recoverability testing).

The recoverability of the LNAPL has now been quantified multiple different ways at the Site (e.g., LNAPL baildown test, MPE pilot test via vacuum-truck, full-scale MPE recovery, then LNAPL transmissivity estimates via the manual skimming technique) with all results concurring that the Site LNAPL is effectively immobile and unrecoverable in spite of the persistence of significant in-well LNAPL thicknesses in some wells. This is consistent with the now well-established concept that in-well LNAPL thickness is an unreliable indicator of LNAPL mobility and recoverability potential.

The Operation and Maintenance Plan (OMP) for the Site states that the NPOS Respondents will contact the U.S. EPA immediately if a trigger of greater than one eighth of an inch of LNAPL is present in any of the sentry wells. It is stressed that this threshold has not been observed. Furthermore, the in-well LNAPL thickness data at the Site must be viewed with the likelihood that the data are biased high. Consequently, there is no evidence that Site conditions have materially changed nor is there any indication from the extensive past LNAPL recovery efforts that there might be some benefit expected from additional LNAPL recovery.

LIBERTY TRUCK SERVICES
(TRUCK REPAIR)

PASSIVE VENTILATION TRENCH

RAILWAY TRACKS

WYOMING AVENUE

FERROUS PROCESSING AND TRADING (METAL RECYCLER)

PASSIVE VENTILATION TRENCH

EASEMENT

RIPRAP

UMH LIFT STATION

SITE ENTRANCE

SECURITY FENCE GATE

RETENTION AREA OUTLET

OVERFLOW SPILLWAY WITH TURF REINFORCEMENT MATTING AND SEED

GRASSED CAP STRUCTURE WITHIN STORMWATER RETENTION AREA

GP1-12 (0.03)
GP2-12 (0.01)
GP3-12 (0.00)
GP4-12 (0.01)
GP5-12 (0.00)
GP6-12
GP7-12 (0.02)
GP8-12 (0.01)

GV1-15 GV2-15 GV3-15 GV4-15
GV5-17 GV6-17 GV7-17 GV8-17 GV9-17 GV10-17 GV11-17

MW1-08 (585.46)
MW2-08 (584.30)
MW3R-08 (584.73)
MW4-08 (584.99)
MW5-08 (588.11)
MW6-10 (585.13)
MW7-10 (584.82)
MW8-10 (585.18)
MW9-10 (584.66)
MW10-10 (585.92)
MW11-12 (1)
MW12-12
MW13-12 (585.31)
MW14-12 (584.70)
MW15-12 (585.04)
MW16-12 (585.10)

EX-1 EX-2 EX-3 (0.45) EX-4 (0.27) EX-5 (0.01) EX-6
EX-7 EX-8 EX-9 (0.09) EX-10 (0.01) EX-11 (4.84) EX-12 (1.02)
EX-13 EX-14 EX-15 EX-16 (0.16) EX-17 (0.39) EX-18 (0.01)
EX-19 EX-20 EX-21 (0.12) EX-22 (0.19) EX-23 (0.34) EX-24 (1.67)
EX-25 EX-26 (0.22) EX-27 (0.29) EX-28 (0.17) EX-29 (0.27)
EX-30 EX-31 EX-32 (0.33) EX-33 (0.49) EX-34 EX-35 (0.44) EX-36 (0.41)

TW-1 (585.15) (0.15)
TW-2 (585.04) (0.29)

583.50
584.00
584.50
585.00
585.50
586.00

M.H.
C.B.
U.P.
POST
CB1
6" POST

LEGEND

- PROPERTY BOUNDARY
- LEGAL BOUNDARY
- RAILWAY LINE
- C.B. CATCH BASIN
- UMH LIFT STATION
- GRASSED AREA
- CAP LIMIT
- SWALE
- FENCELINE
- 40 MIL HDPE LINER LIMIT (LINER ANCHOR TRENCH LOCATION)
- OVERHEAD POWER LINE
- STORM CULVERT
- MW2-08 GROUNDWATER MONITORING WELL LOCATION
- TW-1 TEST RECOVERY WELL LOCATION
- EX-1 EXTRACTION WELL LOCATION
- MW11-12 LNAPL SENTRY WELL LOCATION
- GP1-12 GAS PROBE
- GV1-15 GAS VENT
- C.B. CATCH BASIN
- M.H. MANHOLE
- U.P. UTILITY POLE
- LINE 1
- LINE 2
- LINE 3
- LINE 4
- 583 GROUNDWATER CONTOUR (ft AMSL) (DASHED WHERE INFERRED)
- (582.97) GROUNDWATER ELEVATION (ft AMSL)
- ft AMSL FEET ABOVE MEAN SEA LEVEL
- LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL) THICKNESS OR SHEEN OBSERVED IN SPECIFIED WELL
- (0.01) LNAPL THICKNESS OBSERVED IN SPECIFIED WELL (FEET)
- (0.02) PRESSURE MEASUREMENT IN INCHES OF WATER COLUMN (" H_2O) (MEASUREMENTS COLLECTED USING A DIGITAL MANOMETER)

NOTE:
(1) DAMAGED WELL - UNABLE TO COLLECT MEASUREMENTS/READINGS.
(2) WATER PRESENT, UNABLE TO COLLECT MEASUREMENTS/READINGS

SOURCES
- SITE LAYOUT MAP WESTON (11/21/2006)
- CERTIFIED SURVEY, CONESTOGA-ROVERS & ASSOCIATES, Inc., 04/16/2008 AND SURVEY MAY 02, 2011
- EQ SURVEY JULY 30, 2012 AND OCTOBER 18, 2012.
- CONESTOGA ROVER & ASSOCIATES (CRA) SURVEY DECEMBER 17, 2014. DATUM: SPCS MI S NAD83, INTFT. MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) - CONTINUOUSLY OPERATING REFERENCE STATION (CORS) NETWORK.

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

FORMER DEARBORN REFINING SITE
DEARBORN, MICHIGAN

APRIL, MAY, AND JUNE QUARTERLY PROGRESS REPORT

MAY 17, 2018 WATER LEVELS AND LNAPL OBSERVATIONS

GHD

Source Reference:			
Project Manager: G. TURCHAN	Reviewed By: M. BARRERA	Date: May 2018	
Scale: AS SHOWN	Project Nº: 48041-00	Report Nº: PRES064	Drawing Nº: figure 1

48041-00(PRES064)GN-WA001 AUG 16, 2018